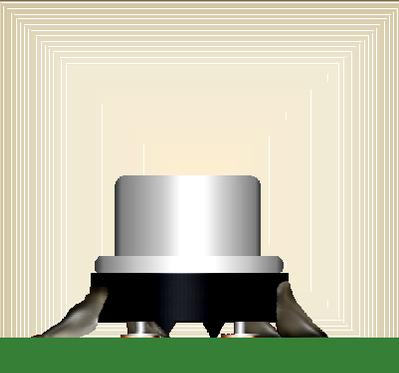
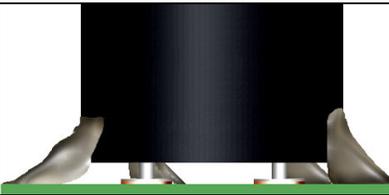


**CONFORMAL COATING and STAKING (BONDING)
ADHESIVE BONDING / STAKING**



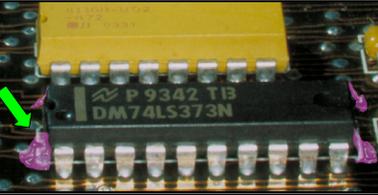
ADHESIVE BONDING / STAKING

The primary purpose for adhesive bonding / staking is to protect and support components and parts that may be damaged by vibration, shock, or handling. Bonding / staking material may either be resilient or rigid.



**PREFERRED
ADHESIVE BONDING / STAKING**

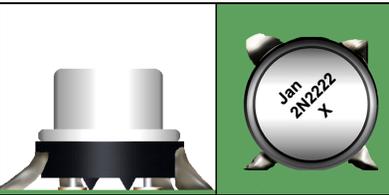
Adhesive bonding / staking material has been applied to the parts and locations specified by the approved engineering specification. Material quantity is sufficient to provide required support, but does not negate stress relief or mechanically compromise hardware reliability.



**PREFERRED
FLEXIBLE MATERIALS**

Flexible staking materials with a high thermal expansion coefficient shall not be applied where excessive stress may be damaging. As depicted, the staking material has been applied to the corners of the package.

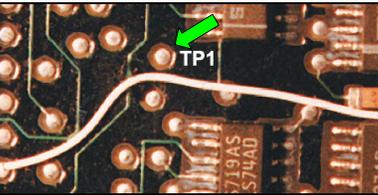
[NASA-STD-8739.1 \[9.2.1 \]](#)



**PREFERRED
PERIPHERY RULE**

Staking material shall be of sufficient quantity to result in a minimum of 20% of the component's periphery being bonded.

[Best Workmanship Practice](#)



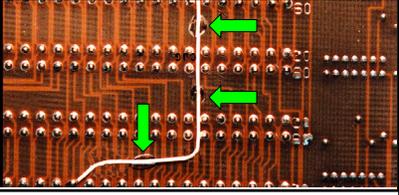
**PREFERRED
SOLDERABLE AREAS / TEST POINTS**

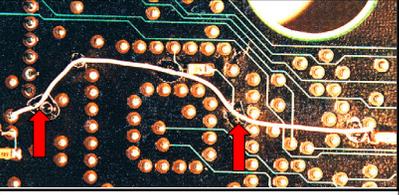
Adhesive / staking material shall not be applied to areas that are to be soldered, or are to be used as test points. Contamination / solderability issue.

[Best Workmanship Practice](#)

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**CONFORMAL COATING and STAKING (BONDING)
ADHESIVE BONDING / STAKING (cont.)**





**ACCEPTABLE
JUMPER WIRES**

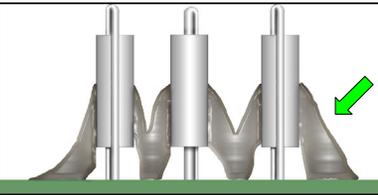
Jumper wires shall be staked every 2.54 cm (1 inch), at a minimum, and at every change of direction outside of the radius of curvature.

[NASA-STD-8739.1 \[9.2.4 \], \[11.6.2.c \]](#)

**UNACCEPTABLE
BONDS IN WIRE CURVATURE**

Staking along a jumper wire's radius of curvature can negate strain relief, resulting in reliability concerns.

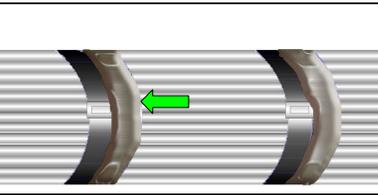
[NASA-STD-8739.1 \[9.2.4 \]](#)



**ACCEPTABLE
MULTIPLE VERTICAL AXIALS**

Staking adheres to each component for at least 50% of each component's length (L), is continuous between components, and adheres to each component a minimum of 25% of its circumference.

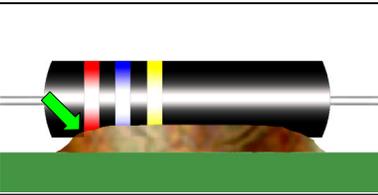
[Best Workmanship Practice](#)



**ACCEPTABLE
SPOT TIES ON WIRE BUNDLES**

Spot ties on wire bundles shall be staked per engineering documentation.

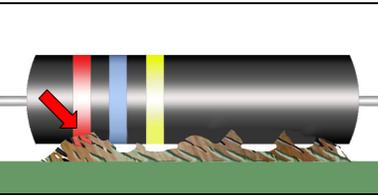
[NASA-STD-8739.1 \[9.2.1 \]](#)



**ACCEPTABLE
SUBSTRATE CONTACT**

The staking material shall wet and adhere to a minimum of 50% of component length (L), and 25% of circumference, depending on mounting configuration.

[Best Workmanship Practice](#)



**UNACCEPTABLE
INSUFFICIENT SUBSTRATE CONTACT**

The staking material shall wet and adhere to a minimum of 50% of component length (L), 25% of circumference, depending on mounting configuration.

[Best Workmanship Practice](#)

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**CONFORMAL COATING and STAKING (BONDING)
ADHESIVE BONDING / STAKING (cont.)**

<p style="text-align: center;">ACCEPTABLE TOROID STAKING – CONTINUOUS FILLET</p> <p>Staking of toroids and other large footprint components shall be sufficient to provide uniform support and prevent movement.</p> <p>NASA-STD-8739.1 [9.2.1]</p>	<p style="text-align: center;">ACCEPTABLE TOROID STAKING – DISCONTINUOUS FILLET</p> <p>The staking fillet may be discontinuous if the application of material will interfere with adjustable components, test points, or serviceable mechanical components. The staking shall be sufficient to provide uniform support.</p> <p>NASA-STD-8739.1 [9.2.1]</p>

**CONFORMAL COATING and STAKING (BONDING)
ADHESIVE BONDING / STAKING (cont.)**

<p style="text-align: center;">ACCEPTABLE BUBBLES</p> <p>Minor bubbles in the staking material fillet are acceptable, provided they do not reduce the fillet's cross-section below minimum requirements.</p> <p>Best Workmanship Practice</p>	<p style="text-align: center;">UNACCEPTABLE BUBBLES</p> <p>Bubbles shall not reduce the cross-section of the fillet below minimum requirements.</p> <p>Best Workmanship Practice</p>

<p style="text-align: center;">ACCEPTABLE VERTICAL MOUNT AXIAL</p> <p>Staking wets and adheres to the component and the substrate for at least 50% of part length (L) and 25% of part circumference. Proper wetting and adhesion to the part and substrate is evident.</p> <p>NASA-STD-8739.1 [9.2.1]</p>	<p style="text-align: center;">ACCEPTABLE VIBRATION ISOLATION</p> <p>Staking materials applied for vibration isolation / support shall be applied per engineering documentation.</p> <p>NASA-STD-8739.1 [9.2.1]</p>

<p style="text-align: center;">ACCEPTABLE BRIDGING ARRAYS</p> <p>Staking material may be applied across the top of an array of parts, provided the staking covers the entire width of the top of the parts, exhibits a fillet a minimum of 2/3 of part width on each end of the array, and stress relief is not negated.</p> <p>NASA-STD-8739.1 [9.2.1]</p>	<p style="text-align: center;">ACCEPTABLE EXCESSIVE FILLET</p> <p>Staking material exceeds 50% of the component diameter, but does not extend over the component, obliterate markings, or negate component lead stress relief.</p> <p>NASA-STD-8739.1 [9.2.1], [9.2.3.a]</p>

<p style="text-align: center;">UNACCEPTABLE BONDS IN STRESS RELIEF</p> <p>Staking material shall not negate stress relief of parts, enclose joints or part leads, or mechanically compromise the reliability of the hardware.</p> <p>NASA-STD-8739.1 [9.2.3]</p>	<p style="text-align: center;">UNACCEPTABLE BURIED COMPONENT LEAD</p> <p>Staking material shall not encapsulate a component's lead.</p> <p>NASA-STD-8739.1 [9.2.3.a]</p>

<p style="text-align: center;">ACCEPTABLE FASTENER SPOT STAKING</p> <p>Staking materials shall be applied to fasteners per engineering documentation.</p> <p>NASA-STD-8739.1 [9.2.1]</p>	<p style="text-align: center;">ACCEPTABLE HORIZONTAL MOUNT AXIAL</p> <p>Staking adheres to component a minimum of 50% of its length (L) and 25% of its diameter (D), on one side, and is centered. Proper wetting and adhesion to the part and substrate is evident.</p> <p>NASA-STD-8739.1 [9.2.1]</p>

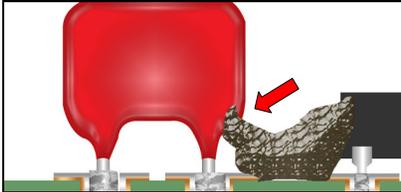
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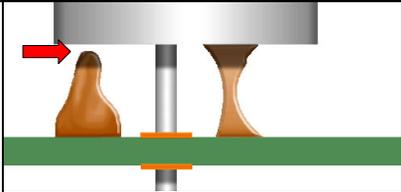
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**CONFORMAL COATING and STAKING (BONDING)
ADHESIVE BONDING / STAKING (cont.)**



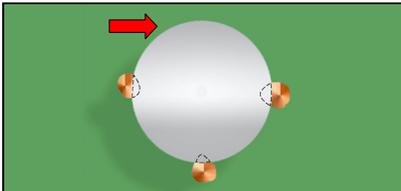
**UNACCEPTABLE
CONTACT WITH GLASS-BODIED PART**

Rigid staking material is in contact with the unsleeved area of a glass-bodied component.
[NASA-STD-8739.1 \[9.2.3.c \]](#), [11.6.3.e]



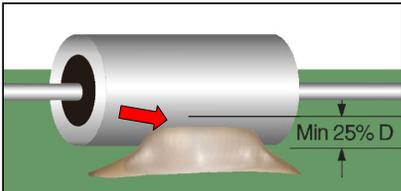
**UNACCEPTABLE
IMPROPER WETTING**

Bonds do not show evidence of proper wetting and adhesion to the bottom and side of the component and the mounting surface.
[NASA-STD-8739.1 \[9.2.1 \]](#)



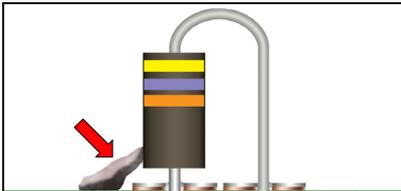
**UNACCEPTABLE
INSUFFICIENT BONDS**

Bonds are less than specified in engineering documents and/or are less than a minimum of 4 equally spaced bonds for parts in excess of 7 gm (0.25 oz.) per lead.
[Best Workmanship Practice](#)



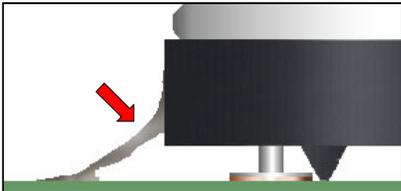
**UNACCEPTABLE
INSUFFICIENT FILLET
HORIZONTAL MOUNT**

Staking fillet height is less than 25% of the component diameter (D).
[Best Workmanship Practice](#)



**UNACCEPTABLE
INSUFFICIENT FILLET
VERTICAL MOUNT**

Staking extends upwards less than 50% of the component length (L).
[Best Workmanship Practice](#)



**UNACCEPTABLE
INSUFFICIENT MECHANICAL SUPPORT**

The staking material forms too thin a column to provide good mechanical support.
[Best Workmanship Practice](#)

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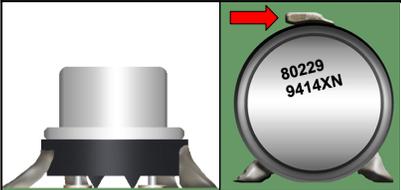
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CONFORMAL COATING and STAKING (BONDING)
ADHESIVE BONDING / STAKING (cont.)



UNACCEPTABLE
INSUFFICIENT PERIPHERAL SUPPORT

Less than 20% of the total periphery of the component is bonded.

[Best Workmanship Practice](#)

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